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The R33 as an aircraft carrier.

T. & A. Photos

VOLUME XIX

NUMBER 26

SPECIAL FEATURES

THE BINGHAM BILL

THE MITCHELL TRIAL

REPORT OF THE LAMPERT COMMITTEE

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The Lampert Committee Report

BLANKETED, as was intended, by the President's Aircraft Board's Report, the recommendations of the Select Committee of the House of Representatives have not received the attention that they have deserved The Lampert conclusions were made public at a time when other matters of such great importance were in the papers that comparatively small notice was taken of these very important recommendations

Differing at almost every vital point with the President's Board, the report gives evidence that the whole subject is one on which hardly any two people can agree, especially if political considerations are allowed to enter into the picture. If the astute suggestion of Secretary Davis for the creation of a civilian board had not been adopted, and the public had only been given the Lampert Report, the effect would have been most embarrassing to the Administration As it is, the public has been given the findings of the President's own board of distinguished men and has been more confused than ever by a conflict of ideas

Many of the recommendations that were made far exceeded the hopes of the airmen. They are bound to have careful consideration of the House. They will serve as a foil to the other report. Those interested in any development ought to be grateful to the members of this committee for their diligence and fearlessness

The Trick Verdict

IT IS NOT too much to say that the verdict of the Court Martial of the trial of Ex-General Mitchell was not based strictly on the evidence. It was so formulated that the punishment would come nearest to what the Army wanted, namely, control of the flier's actions and voice, without locking him up Any other kind of a verdict would not have accomplished this as cleverly as the decision of the court It is, therefore, not too much to say that the verdict was based on a desire, rather than on the evidence.

The events of the last five years leading up to this conviction can be quickly retold When General Mitchell returned from overseas he was outspoken in favor of a single air department such as had been established in Great Britain He was also determined to secure a demonstration of air power against sea power His third purpose was to attempt to get a revaluation of all arms to the national defense The efforts of Congress, leading to an independence of air work in the government, have only been begun The sinking of the German battleships was a personal triumph as well as a convincing demonstration to the public of the potentialities of aircraft As to the readjustment of the military, naval and air strengths, the country is awakened, and it is not without reason to expect this will come about gradually though a complete unification of authority does not come at once

When he started in to make his fight, he was supported by a very few airmen, while the opposition has been stupendous The people of the country, if they could vote on the question, would probably decide in favor of a single head for all national defense They would also, it is probable, give air power an equal footing with the older services Public opinion has been educated to the essential character of aerial warfare So much so is this true, that the older arms are in a state of desperation. No effort is too great to stop the trend of public opinion And one of the outcomes has been the muzzling verdict of the Army Court Martial

Predictions regarding the future are not worth making. The foundation has been laid The issues are defined and the country has its opinion Impatience or any evidence of defeat at this time is entirely out of line with the evidences of popular support on every hand. Instead of the verdict settling anything, it has only served to make the conflict more desperate A verdict of acquittal was not to be expected, a dismissal would have been too dangerous, the trick verdict let the members of the court out with an ingenious decision; the reviewing authorities will have to shoulder the real blame This winter will witness the next scene. If it contains as many thrills as were furnished during the period when Congress was not in session, it will be well worth chronicling

The Limit of Capacity in Airliners

THE DEVELOPMENT of air passenger transportation is about to place another problem of airplane design upon the shoulders of aeronautical engineers Just as freight cars for the railroads are designed and constructed along totally different lines from the methods adopted in the production of passenger cars, so it would seem that the design of airplanes for passenger carrying, involves entirely different questions from those presenting themselves in regard to air freight carriers or mail carriers. In each case, however, the question of volume of traffic to be handled, will be an all important one.

The problem of the most economical carrying capacity of an airliner will prove an extremely important one from the economic point of view. This point is emphasized in the recent acquisition in Europe of a twenty-one passenger airliner, to be put into service on the London-Paris and London-Amsterdam, etc., air routes It has been shown, in statistics of the operation of these cross-Channel services, that the average passenger load is of the order of three or possibly four passengers

The question arises, then, as to the exact value of large passenger planes to an air transportation company. A plane having a capacity of twenty-one passengers, it would seem, would render its operation on the cross channel routes precarious from the economic standpoint. While there is a possibility that the volume of traffic might warrant such a plane during one or two months in the year when passenger traffic is high, whether the upkeep of such planes the whole year 'round is a financially sound policy is doubtful

The Lampert Committee Report

Report of Select Committee of Inquiry into Operations of the United States Air Service

THE Report of the Lampert Committee was submitted to Congress on December 11, 1925. It consists of the main report printed below, much supporting data in appendices and a minority report by Congressman Frank R. Reid. In the latter Mr. Reid states that he believes that, while the committee recommends a department of national defense, it should have presented to Congress "an outline of how this proposed department should be organized," which he does, in great detail. Pending the establishment of a department of national defense, he urges that the air services be unified and gives his reasons for believing that this should be done immediately.

The entire report may be secured by making a request to Hon. Florian Lampert, House of Representatives, Washington, D. C. The report follows:

The Select Committee of Inquiry into Operations of the United States Air Services was appointed by the Speaker under H.R. 192, passed on March 24, 1924. The scope of the inquiry was very broad, being defined in the resolution as follows:

* * * said inquiry shall include investigation of contracts, settlements, or audits thereof, letters, expenditures, reports, receipts, or other documents in any way connected with any or all transactions of the said United States Army Air Service, the United States Naval Bureau of Aeronautics, the United States air mail service, or any agency, branch, or subsidiary of either, and any corporations, firms, or individuals or agencies having any transactions with or being in any manner associated with or controlled or regulated by the said Air Services.

The committee examined more than 150 witnesses under oath and a duly appointed examiner cross-examined them, and other members of the committee participated in the inquiries. The work of the committee extended over a period of 11 months. Public hearings began on October 4, 1924, and ended March 2, 1925, being held in Washington, New York, Pasadena, and San Diego. Members of the committee or direct representatives of the committee with power to make examinations visited the following points: Bolling Field, Anacostia naval station, Bureau of Standards, Langley Field, Army Air Service, Langley Memorial Laboratories of National Advisory Committee on Aeronautics, Hampton naval air station, the Wright aircraft carrier, under construction, international races at Dayton, Ohio, McCook Field, Army Air Service Engineering School, Wilbur Wright Field, at Fairfield, Ohio, of Army Air Service, and the Curtiss Aeroplane & Motor Co. at Garden City, Long Island.

The printed record of the investigation consists of six volumes including an exhaustive index. In addition there are many exhibits on file with the committee, which are open to the inspection of Members of the House.

Manufacturers Aircraft Association and Save-Harmless Clause

In the debates in Congress which led to the appointment of this committee much stress was laid upon the necessity of a complete investigation of certain general charges which had been in circulation throughout the country for some years concerning the relationship between the Government and the industry, and concerning the contracts between the Government and the industry. These charges alleged corruption of Army and Navy contract officers, that manufacturers secured excessive profits, that there existed an aircraft trust or conspiracy among some of the Manufacturers Aircraft Association, and that the so called "save harmless" clause in the contracts was unjust and inequitable and gave definite advantages to certain contractors.

The committee made an investigation of these charges, studying contracts in detail, examining many witnesses and calling upon the War Department, the Navy Department, the Department of Justice, and the Comptroller General to obtain the definite facts necessary. Upon the basis of these facts, the committee finds as follows:

(1) That there was no evidence of corruption on the part of the officers of the Army and Navy or the members of the aeronautical industry submitted to the committee.

(2) That contracts given to airplane builders have not resulted in excessive profits, but, on the contrary, the aircraft industry, dependent on Government contracts, has been liquidating and going out of business to such an extent that the statement in the Lassiter Board report that "it (the aircraft industry) is rapidly diminishing under present conditions and will soon practically disappear," is justified.

(3) That the charges and the allegations that there existed an aircraft trust, or conspiracy, were not proven. Both the association and the cross-license agreement upon which it is based had been investigated nine times in eight years, two of these investigations having been made by the Department of Justice. Both have sustained the legality of the manufacturers' Aircraft Association and the cross-license agreement. That the findings of these legal investigations should now be accepted as conclusive.

(4) That the so-called "save-harmless" clause in all air contracts, whereby the Government agrees to protect the contractor against patent claims arising out of contracts for material with the Government is directly in accord with the law, and is in fact merely an interpretation of an act of Congress passed on July 1, 1918, to enable the Government to obtain what it requires from the contractors and at the same time protect those contractors against legal risk through violation of patents, by laying upon the Government itself the burden of defending such violation or compensating for them if and when they occur in the manufacture of the essential supplies for the Government, that this principle has been the basis of Government contracting for many years, and is recognized as basically sound, that in some cases, however, it works an incidental hardship upon inventors who are financially unable to seek the redress provided for under the statutes through the Court of Claims, that the constant circulation of rumors and charges arising out of the above matters has been a destructive influence in the aviation industry in the United States for the past eight years, has deterred the influx of capital into this essential industry and has tended to drive capital out of it, has laid upon the officers of the Government and upon the owners of businesses in this trade suspicions which this committee believed unfounded.

The subject of the Manufacturers' Aircraft Association and "save-harmless" clause is more fully discussed in Appendix A.

Governmental Expenditures in Aircraft

The committee asked and received voluminous data and much information from the Army Air Service and the Navy Bureau of Aeronautics concerning expenditures for aircraft purposes. The committee finds,

(1) That the total expenditure for aviation for the Army and Navy Air Services for the five years, 1920 to 1924, inclusive, was $424,234,107.90, divided as follows:

Army	$246,310,269.51
Navy	186,861,061.78
National Advisory Committee on Aeronautics	1,082,126.85

The annual expenditure of the Army and Navy was approximately $84,000,000 per annum.

Of this $246,000,000 charged against the Air Service of the War Department, expenditures were made as follows:

Value of war surplus stock	$68,000,000
Housing and maintenance of personnel	76,000,000
Operation, maintenance, research, experimentation, and development of aircraft	78,000,000
New Aircraft, reconditioning of war-built aircraft and for engines, of which $2,000,000 were spent for lighter than air craft	24,000,000

Of the total amount spent in the Army Air Service, only 10 per cent went into procurement of new planes and engines and remodeling old ones.

(2) That of the Army expenditures, a total of $102,400,887.76 were made from direct appropriations, that the principal items from these direct expenditures were as follows:

Operations, approximately	$59,000,000
Research, invention, experimentation, remodeling, and construction of airplanes for the Army itself and purchased from outside sources	43,000,000
Purchase and remodeling of airplanes and engines for issue to units in the Army	22,263,140

That is, there has been spent about $12,000,000 annually in operating the Air Service and about $8,600,000 annually in procurement, research, etc.

The average annual expenditure for purchase and remodeling of airplanes and engines for issue to units in the Army has been $4,450,000.

(3) That of the total additional cost of the Army Air Service, the principal items during the five-year period had been an item of approximately $14,000,000 per annum, representing the value of war surplus used up year by year, an item of approximately $9,000,000 representing the pay of the Army and an estimated item of approximately $5,000,000 representing the expenditures of the Quartermaster Corps in regard to Army aviation.

(4) That of the sum of $186,861,061.78 spent by the Navy in the five-year period, about $57,000,000 were for indirect expenditures and $46,172,893 represented the value of war surplus material. Of the balance of over $83,000,000 about $19,000,000 was spent for new airplanes and over $10,000,000 for experimental, engineering research, invention, and construction. The item of $10,000,000 includes approximately $2,500,000 for lighter-than-air equipment (the *Shenandoah*, *Los Angeles*, *etc.*).

(5) That the expenditure of more than $30,000,000 in the five-year period by Army and Navy combined, for so-called experimental and research work, has built up or maintained in both bureaus a governmental aviation industry larger than the entire civilian industry, employing at the naval aircraft factory at Philadelphia at the time of the investigation approximately 1,100 men, and at McCook Field and Fairfield approximately 1,200 men, and entailing a naval aircraft factory pay roll of approximately $2,200,000 a year, and at McCook Field approximately $2,000,000 a year, that these expenditures for experimental and research work have not produced results commensurate with the expenditures and that both services, since the committee began its hearings, have greatly curtailed these expenditures and have shown a strong tendency to recognize the fact that it is unwise for the Government to spend such a large proportion of the resources in this branch.

A fuller discussion of this subject is embodied in Appendix B of this report.

(6) That in spite of the expenditure of nearly $40,000,000 for purchase and overhaul of airplanes and motors the air services of both Army and Navy have deteriorated in equipment and in morale; that deterioration in equipment is due in large part to the increasing age of the war surplus equipment issued to the services, that the deterioration in morale is due in large part to four causes:

(*a*) The deterioration in equipment noted above.

(*b*) To the fact that war surplus equipment is far inferior in aerodynamic quality to modern equipment.

(*c*) The discouragement of personnel arising out of inequality of opportunity for promotion and increase of pay.

(*d*) The lack of an established, defined policy in the maintenance of our air forces.

(7) That in modern equipment, quality and performance are not excelled, on the whole, in any other country in the world; but that in quantity of such equipment, there is a crying necessity for new equipment of the most modern types. Some essential types of service planes have not been developed especially bombers, attack, and possibly pursuit planes.

(8) That the use of airplanes designed and built in the year 1918 and earlier constitutes a very large proportion of the machines used in the Army and Navy. The progress of aviation has made these machines antiquated and serviceable only for limited purposes. Their use for purposes for which they are unsuited impairs the efficiency of our aircraft service, lowers the morale of the flying personnel, and discourages the enlistment of new personnel and the training activities of the reserve officers. The committee finds that all obsolete and unsafe planes and equipment should, after proper survey, be destroyed.

Administration of Government Aircraft Activities

The committee gave much consideration to the administration of Government aircraft activities.

In 1923 the War Department invented a board, known as

The Select Committee on Aircraft of the House of Representatives with Ex-Gen. William Mitchell (center)—L. to R.: Representatives Randolph Perkins, chief examiner of the Committee, Florian Lampert, chairman of the Committee, Rep. C. F. Lea of California, Rep. J. V. McClintic of Oklahoma, Ex-General Mitchell, Rep. A. H. Vestal of Indiana, Rep. F. R. Reid of Illinois, Reps. A. S. Prall and F. H. LaGuardia of New York

the Lassiter Board, which thoroughly investigated the status of our Air Service and considered requirements for its improvement.

This board found—

After an exhaustive study of the situation the committee reports that an alarming condition in the Air Service exists, due to shortage of flying personnel and equipment, which, if allowed to continue, will very soon cause this important combatant arm to reach a condition which will cause it to be negligible as being any national defense.

The committee believes the Lassiter Board report constitutes a fair basis for the present study of our administrative methods and that its findings as to the condition of our service are substantially true to-day.

The Army and Navy are unable to agree in proposing legislation to improve the alarming condition found by the Lassiter Board, and therefore no substantial changes in legislation or administrative practices have been instituted up to this time.

This subject is fully discussed in Appendix C.

Importance of Aircraft

Aircraft will be the first resort of our country in case of a war emergency. It is one of the most essential arms of our military defense. Every new development of the modern airplane increases its relative importance.

It has introduced an element of mobility in military operations that compels a revision of all military plans of preaircraft days.

It has lessened the relative importance of the battleship, but has not eliminated the necessity of it. The airplane becomes the necessary auxiliary and defender of the battleship. The reluctance and hesitation with which we have recognized its growing and future importance are basic reasons for the retarded condition of our air power.

The question of the relative standing of the United States in air power among the nations of the world is largely a matter of opinion. It is clear, however, that the standing of the United States is not higher than third nor lower than fifth in the air power of the world.

The importance of aircraft is further discussed in Appendix D.

Air Service Policies

The committee finds:

(1) That there is no uniformity of Army and Navy policy as to organization, equipment, control of personnel, procurement, design or use of aircraft, that there is no continuity of policy with respect to design and purchase of aircraft and engines in either the Army or the Navy, that the attempts to coordinate the activities of the Army and Navy by the use of joint boards, the National Advisory Committee on Aeronautics, and other agencies have been sporadic and occasional and therefore have not achieved the results desired; that there is a distinct conflict of opinion between the Army and Navy as to air activities in coast defense, that there is a wide divergence of opinion between the Army and Navy as to the effectiveness of aircraft operating against surface vessels, that there is an equally wide divergence of opinion as to the value of antiaircraft artillery operating against aircraft, that there is a certain amount of unnecessary duplication in the expenditure of both money and effort by the Army and Navy seeking to accomplish similar results in technical research, in construction, and in administration of aircraft, in procurement, in hospitalization, and in training and field activities.

(2) That the Navy system of promotion and pay deprives flying personnel of opportunity for high command and does not recognize that the aviation service is any more hazardous than the nonflying branches of the service; that this result is lowering the morale of the aviators in the Navy and is a hardship which can be and should be remedied.

(3) That discrimination arises in respect to the pay and promotion of Army aviators, which has been one of the contributing factors to a spirit of discontent, which appears from testimony to be general throughout the Army Air Service.

(4) That the air defense of the country has created new and very involved problems of administration. The difficulty of solving these administration problems has been materially increased by reason of the fact that neither in the General Staff of the Army nor on the General Board of the Navy has there been sufficient representation of officers experienced in aviation matters and who have advocated the full and complete use and development of Army and Navy aviation for the defense of the country.

(5) That a great many remedies have been advocated in this and in other lands to cure the conditions arising out of the great problem of administering the new art of air warfare, the principal of which are as follows:

(*a*) A unified air force operating independent of the Army and Navy and sending units to these services as needed.

(*b*) A separate air force operating individually, the Army and the Navy at the same time retaining all the units required for Army and Navy tactics.

(*c*) Aviation corps in both Army and Navy.

(*d*) A slight modification of the present system by the installation of assistant secretaries of air in the War, Navy, and Commerce Departments.

(*e*) A department of national defense under one civilian secretary.

(*f*) The building up of a great air power through the curtailment of many branches of Army and Navy.

The Aviation Industry

The committee found unanimity of opinion from all sources—military, naval, commercial and industrial—that the aviation industry is an essential part of national defense and must be maintained. The committee finds as follows:

(1) That the aviation industry in the United States has dwindled and is dwindling, and that the principal causes of the weakness of the industry are as follows:

(*a*) Lack of continuity in Government orders.

(*b*) Losses on Government contracts, both experimental and production.

(*c*) Direct competition by Government plants.

(*d*) Failure to recognize and protect design rights.

(*e*) A destructive system of competitive bidding.

(*f*) Discouragement of enterprise and individual efforts as the result of more than 20 investigations of various sorts in a period of 8 years.

(*g*) Lack of confidence and mutual understanding among contractors themselves.

(*h*) Failure of the industry to develop commercial and export trade.

The power of the airplane industry to serve the country in case of emergency has greatly decreased since the peak of its productivity during the war period.

The subject is more fully discussed in Appendix E.

Commercial Aviation

The committee finds:

(1) That in respect to the operation of airplanes for profit, the United States is far behind in the use of planes for aviation.

(2) That other nations excel us largely because of subsidies granted commercial aviation as a reserve for war.

(3) That commercial aviation lags because of the inherent difficulties of operating on a profit-making basis. That its development is further handicapped by the lack of congressional legislation for its regulation and encouragement, for the licensing of pilots, the inspection of airplanes, and the general regulation of interstate flying.

(4) There is a lack of airways, aircraft facilities, meteorological service, air terminals, and lines.

(5) That the United States has failed to ratify the International Air Convention.

(6) The committee finds that there are about 10,000 surplus Liberty motors. These motors placed on sale at moderate prices might encourage commercial aviation.

(7) We find instances in which the departments calling for competitive bids for new designs of airplanes have allowed insufficient time in which bidders could properly prepare and submit plans and designs. This matter is further discussed in Appendix F.

There are many instances in which it is necessary or desirable that the Government acquire the use or ownership of patents for aircraft or other requirements. The Government is frequently charged with the infringement of patent rights by owners. The Government may acquire a patent or the right to use it by purchase or by appropriation. In practice, the methods of acquiring patents, both by purchase and appropriation, do not appear satisfactory either from the standpoint of the Government or the patentee. If the Government infringes or appropriates a patent, the only recourse of its owner is to prosecute a suit in the Court of Claims. The expense and delay of such a proceeding frequently amounts to a substantial denial of the rights of the patentee. This situation calls for remedial legislation.

Department of National Defense

Our military organizations are manifestly designed for one purpose—the national defense. The Army and Navy are each vast organizations, with a multiplicity of functions. They perform many duplicated and similar functions. Each is designed for action in case of war. They are less burdensome to maintain and more efficient when their expenditures, their training, their preparation, and the performances of their duties are coordinated, harmonized, and centralized.

A single department of national defense through its unity of command would harmonize our national defense system, reduce expenditures for supplies, and prevent needless duplications, promote understanding, lessen friction between our different military arms, and provide a uniform and equalized system of pay, promotion, and retirement. It should decrease the overhead of maintenance and decrease the number of organizations and bureaus within the departments. It should promote the interchange of effort in peace and war, it should work for economy, efficiency, and strength in our national defense.

It would train and habituate our military organizations in peace time, for that cooperation that is essential in war.

Recommendations

The committee recommends—

1. That the Federal Government cease competing with the civilian aircraft industry in the construction of aircraft, engines, and accessories.

2. That means be provided whereby the inventor who alleges violation of his patents by the Government may apply for relief other than by resort to the Court of Claims.

3. That procurement be separated from operation in all Government air services.

4. That one single governmental civil agency be given sole charge of procurement of aircraft, engines, and equipment, to the end that duplication in expense be avoided, uniformity of equipment promoted, and a continuous and definite policy, established looking to the strengthening of the sources of supply, the maintenance of the industry, the promotion of the aircraft production capacity of the Nation, and the establishment of a sound policy of Government procurement.

5. Congress should at once pass a law permitting the procurement of aircraft engines and aeronautical instruments and accessories without requiring competitive bidding under restrictions that will promote the best interests of the Government.

6. That Congress authorize the procurement agency to recognize rights in designs of aircraft, engines, and accessories.

7. That the industry be assisted in the procurement of noncommercial supplies, either through the Government as debits on procurement contracts, or the grouping of purchases within the industry.

8. That the Air Service departments of the Government make greater use of the facilities of the Bureau of Standards for research and technical work and correspondingly reduce their own activities.

9. That Congress provide by law for the regulation and encouragement of commercial flying through a bureau of air navigation in the Department of Commerce. Provision should be made for the charting of airways, for emergency fields, aircraft facilities, night flying, and a specialized weather information service. That so far as practical such developments should be preceded by essential engineering surveys.

10. That Army and Navy landing fields and facilities be made available for civilian aviation, so far as practicable.

11. That Governors Island, at New York City, and Grant Park, at Chicago, be made airports for postal and civilian use.

12. That a greater number of men be trained as aviators and that more adequate equipment and facilities be provided for our reserve flyers.

13. That reserve pilots be given not less than four hours' training per month throughout the year and be called for active duty at Air Service stations for tactical training for a period of not less than two weeks each year.

14. That additional compensation necessary to secure an adequate number of competent mechanics to maintain airplanes in efficient operation be provided, that such mechanics should be relieved of routine military duties.

15. That Congress provide remedies for the inequalities and injustices suffered by the aviation officers of the Army and Navy.

16. That Congress determine immediately and settle by legislation the respective fields of operation of the Army and the Navy.

17. That the War and Navy Departments should survey, condemn, and destroy all obsolete and unsafe airplanes.

18. That the War Department release for general commercial use at least two-thirds of the war-built Liberty engines now held in storage at moderate prices.

19. That not less than $10,000,000 should be spent annually for the War Department and like sum for the Navy Department for the procurement of new flying equipment, constructed by the civilian industry. The orders should be based on a continuing program.

20. That there be established a separate and all-inclusive budget for each of the air services, the allocation of the appropriations to be by law.

21. That a five-year program of construction, education, training, appropriation, and commercial encouragement should be formulated and carried out.

22. That the Air Services of both the Army and the Navy should at once be adequately represented on the General Staff of the Army and the General Board of the Navy by members who will firmly support the full and complete use of Army and Navy aviation for the defense of the country.

23. That there be established a single department of national defense, headed by a civilian secretary, specially charged with the coordination of the defenses of the country.

FLORIAN LAMPERT, *Chairman*
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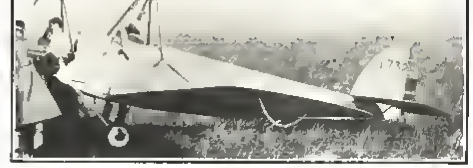


The DeH53 lightplane which was used in the experiments on hooking and unhooking airplanes to and from airships in flight. The experiments were carried out at Pulham, England with the rigid airship R33, and were successful but for the breakage of the airplane's propeller after which it glided down and landed safely.

The Bingham Bill

Promotes As Well As Regulates Air Navigation

ON DEC. 16, 1925, the Senate passed the bill introduced by Senator Hiram Bingham of Connecticut. As the bill was introduced on Dec. 15th, the passage was in record time. The bill provides for the appointment of an Assistant Secretary of Commerce who shall be charged with the encouragement and regulation of air navigation. It also provides for the inspection and regulation of all pilots and aircraft. The bill as introduced by Senator Bingham is printed below. Certain amendments were made, the most important of which was to leave the National Advisory Committee for Aeronautics out from under the supervision of the Department of Commerce. (Sec. 16 was eliminated.) The bill was as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the words "commerce" or "commercial" when used in this Act, unless the text otherwise requires, shall mean the flying, navigating, or operating of any civil aircraft in interstate or foreign commerce, or in, over, or through the District of Columbia, the Territories, and dependencies of the United States.

SEC. 2. It shall be the duty of the Secretary of Commerce to foster commercial air navigation in every way possible and to do all things necessary therefor, cooperating and consulting with all other established governmental agencies, Federal or State, and taking advantage to the fullest degree possible of the facilities they can offer. This shall include the following duties:

(a) To inspect each aircraft before it is used in commerce and to certify as to its condition, capacity, and safety at the date of inspection, and to make the information contained in such certificate available to the public in such manner as he may prescribe. Aircraft found upon such inspection and test to be airworthy shall be issued a certificate of airworthiness.

(b) To establish aerial traffic rules and regulations for the manner of navigating and operating civil aircraft in commerce.

(c) To designate and approve air routes suitable for air commerce.

(d) To encourage the establishment of airdromes, landing fields, and air ports.

(e) To make recommendations to the Weather Bureau as to the necessary meteorological service.

(f) To study the possibilities for the development of commercial air navigation and to collect and disseminate information relative thereto.

(g) To investigate, record, and make public the causes of accidents in civil air navigation.

(h) To exchange with foreign governments through existing governmental channels information pertaining to civil aviation.

(i) To operate and for this purpose to purchase, when appropriations shall have been made to do so, such aircraft as he may deem necessary for carrying out the provisions of this Act.

Inspection and Licensing

SEC. 3. It shall be the duty of the Secretary of Commerce to provide regulations for the following purposes:

(a) The inspection and testing from time to time of any aircraft as to their airworthiness.

(b) The determination and examination of the qualifications of individuals to serve as airmen upon or in connection with aircraft in the United States. Such examination shall be based upon the character, physical fitness, training, and practical experience of the airmen. Any individual found upon such examination to be qualified shall be issued an airman's certificate.

Registration

SEC. 4. The Secretary of Commerce shall by regulation provide for the registration of aircraft as aircraft of the United States, but no aircraft shall be so registered (1) if it is registered under the laws of any foreign country, and (2) unless it is owned by (a) an individual who is a citizen of the United States or its possessions, or (b) a partnership of which each member is an individual citizen of the United States or its possessions, or (c) a domestic corporation of which the president and three-fourths or more of the board of directors or managing officers thereof, as the case may be, are individual citizens of the United States or its possessions and in which at least 75 per centum of the interest is owned by persons who are citizens of the United States, (d) any State, Territory, or possession, or the District of Columbia, or the Canal Zone, or any political subdivision thereof, or (e) any association or corporation directed by Act of Congress to act as a governmental agency. Any aircraft registered under this section shall be issued a certificate of registry.

SEC. 5. No aircraft shall at any time be held an aircraft of the United States unless at such time the aircraft is registered in accordance with the provisions of section 4.

Identification

SEC. 6. The Secretary of Commerce is authorized by regulations to provide for the identification and marking of aircraft in the United States.

SEC. 7. Aircraft other than aircraft of the United States shall not engage in the transportation of passengers or merchandise for hire, nor in any other commercial operation, between the several States, Territories, and/or possessions of the United States, nor within any of the Territories or possessions of the United States. Any aircraft violating the provisions of this section shall be subject to a civil penalty of $500 for each passenger transported and to a civil penalty of $5,000 for merchandise, which shall constitute a lien on such aircraft.

SEC. 8. (a) The owner of any aircraft navigated in commerce without registration, identification, or marking, or without a certificate of airworthiness, or with airmen not holders of certificates as required by this Act, or in violation of the rules and regulations made under this Act, shall be subject to a civil penalty of $500, which shall constitute a lien on such aircraft.

(b) Any person acting as an airman upon any commercial aircraft without the certificate provided in section 3 (b) of this Act, shall be subject to a civil penalty of $500.

(c) The Secretary of Commerce may, upon application, remit or mitigate the penalties provided for in this section or discontinue any prosecution therefor upon such terms as he shall think proper.

Fees

SEC. 9. There shall be paid to the Secretary prior to each registration, identification, inspection, or the issuance of any certificate under this Act fees in amounts to be fixed by the Secretary of Commerce. All fees so received shall be paid into the Treasury of the United States. The amount which in the judgment of the Secretary is equivalent to the cost of rendering such service shall be credited to the appropriation out of which such cost was paid and the balance, if any, shall be credited to miscellaneous receipts.

SEC. 10. The Secretary of Commerce is authorized to suspend or revoke any certificate issued under this Act after giving reasonable notice and an opportunity for a hearing. He is authorized to prescribe regulations governing the procedure in cases of such suspension or revocation.

SEC. 11. The Secretary of Commerce is authorized, within the limits of appropriations therefor made by the Congress, to establish and operate lighted airways and aerial signal stations and radio directional finding facilities for aircraft and radio communication facilities for air navigation.

SEC. 12. Any person who, with intent to interfere with air navigation, exhibits within the United States any false light or signal at such place or in such manner that it is likely to be mistaken for a true light or signal prescribed by the Secretary of Commerce under this Act, or for a light or signal connected with an aerial landing place or other aircraft facility, or knowingly removes, extinguishes, or interferes with the operation of any such true light or signal shall upon conviction be punished by a fine of not more than $5,000 or imprisonment for not more than five years, or both.

SEC. 13. The Secretary of Commerce is authorized to chart commercial air routes and to arrange for the publication of maps of such air routes,

Senator Hiram Bingham

utilizing the facilities of existing Governmental agencies so far as practicable.

SEC. 14. The Secretary of Commerce is authorized—

(a) To make such regulations as are necessary to execute the duties vested in him by this Act.

(b) To make such expenditures (including expenditures for personal services and rent at the seat of Government and elsewhere, and for law books, books of reference, and periodicals) as may be necessary efficiently to execute the functions authorized by this Act and as may be provided for by the Congress from time to time.

(c) To publish from time to time a bulletin setting forth all licenses and permits issued or revoked under the provisions of this Act, together with field reports of all civil air navigation activities, accidents, field and radio data, and such other matters relating to the functions authorized by this Act as he deems advisable.

SEC. 15. To aid the Secretary of Commerce in fostering air navigation and to perform such duties as the President or the Secretary of Commerce may direct, there shall be an Assistant Secretary of Commerce, who shall be appointed by the President, by and with the advice and consent of the Senate, and who shall be entitled to a salary of $7,500 a year to be paid monthly.

SEC. 16. The National Advisory Committee for Aeronautics is hereby transferred to the Department of Commerce and shall perform its duties in accordance with rules and regulations approved by the Secretary of Commerce and under his general direction. The committee's annual report shall hereafter be submitted through the Secretary of Commerce, who shall transmit it to Congress with such recommendations as he may deem proper. The President is authorized to appoint three additional members of said committee, one an Assistant Secretary of War, one an Assistant Secretary of the Navy, and one an Assistant Secretary of Commerce, who shall be chairman of said committee. All unexpended appropriations or allotments therefrom for the National Advisory Committee for Aeronautics are hereby transferred to the Department of Commerce and shall be treated as if the Department of Commerce had been directly named in the laws making such appropriations. Such appropriations shall be expended under the general direction of the Secretary of Commerce.

SEC. 17. The Secretary of the Treasury is authorized to designate places in the United States as ports of entry for aircraft engaged in foreign commerce. All such aircraft upon entering or leaving the United States shall enter such ports and clear under such regulations as may be provided by the Secretary of Commerce.

SEC. 18. Section 3 of the Act entitled "An Act to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the Weather Service to the Department of Agriculture," approved October 1, 1890, is amended by adding at the end thereof a new paragraph to read as follows:

"It shall be the duty of the Chief of the Weather Bureau, under the direction of the Secretary of Agriculture (a) to furnish such weather reports, forecasts, warnings, and advices as may be required to promote the safety and efficiency of air navigation in the United States and upon the high seas, particularly upon air routes designated and approved by the Secretary of Commerce under the provisions of this Act, or established under other authority of law, and (b) for such purposes to observe, measure, and investigate atmospheric phenomena, and establish meteorological offices and stations."

SEC. 19. Air navigation facilities under the jurisdiction of the head of any Government department or independent Governmental establishment may be made available for public use under such conditions and to such extent as the head of such department or establishment deems advisable and may by regulation prescribe.

SEC. 20. The head of any Governmental department or independent establishment having jurisdiction over any airdrome may, when necessary to the continuance of air navigation, sell to any aircraft alighting at the airdrome fuel, oil, equipment, and supplies, and furnish it mechanical service, temporary shelter, and other assistance, under such regulations as the head of the department or establishment may prescribe, if and only if, such action is, by reason of any emergency, necessary to the continuance of such aircraft on its course to the nearest airdrome established by private enterprise. All such articles shall be sold and such assistance furnished at their fair market value prevailing locally. All amounts received under the provisions of this section shall be paid into the Treasury of the United States, and the amount which in the judgment of such head of any Government department or independent establishment is equivalent to the cost of the property so sold shall be credited to the appropriation from which the cost was paid, and the balance, if any, shall be credited to miscellaneous receipts.

SEC. 21. As used in this Act—

(a) The term "United States," when used in a geographical sense, means the territory comprising the several States, Territories, possessions, and the District of Columbia (including the territorial waters thereof) and the air space above such territory, but shall not include the Canal Zone.

(b) The term "aircraft" means any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air, except a parachute or other contrivance designed for such navigation but used primarily as safety equipment.

(c) The term "airdrome" means any area or supporting surface, including structures anchored thereto or floating thereon, which is used or purposely adapted for the storage, maintenance, or repair of aircraft.

(d) The term "air navigation facility" includes any airdrome, landing field, air beacon, or other signal structure, radio directional finding facility, or radio communication facility, or other structure used as an aid to air navigation.

(e) The term "master" means the individual having command of an aircraft.

(f) The term "airman" means any individual (including the master and any pilot, mechanic, or member of the crew) who engages in the navigation of aircraft while under way and any ground engineer who is in charge of inspection, overhauling, or repairing of aircraft.

SEC. 22. This act shall not apply to aircraft owned or operated by the United States.

SEC. 23. If any provision of this Act is declared unconstitutional or the application thereof to any person or circumstance is held invalid, the validity of the remainder of the Act and the application thereof to other persons and circumstances shall not be affected thereby.

Time of Taking Effect

SEC. 24. This Act shall take effect upon its passage, except that no penalty or forfeiture shall be incurred for any violation of this Act occurring prior to ninety days after the passage of this Act.

The Mitchell Trial

Colonel Mitchell to be Suspended from the Army for Five Years

THE culmination of the efforts of Colonel William Mitchell to bring about radical reform in the constitution of the air defense organization of the United States, has reached a new high level mark in the drawing to a close of the proceedings of the court martial which has been trying him on charges of violation of the 96th Article of War. The court, on Dec. 17, passed a verdict of "guilty" and his claims of official negligence have resulted in his suspension from the Army for a period of five years, this sentence to be finally passed upon by the President. Thus has been brought to a temporary close, at least, the persistent efforts of Colonel Mitchell to obtain closer official attention to the particular needs of the air services.

Mitchell's Concluding Statement

At the morning session of the court on Dec. 17, all the witnesses having been heard, Colonel Mitchell made a statement before the court, expressing his opinion that no further useful purpose could be achieved by an argument relating to the testimony of the witnesses for the defense and, accordingly, he had instructed his counsel to abstain from producing further evidence. The text of Colonel Mitchell's statement follows:

"May it please the court. My trial before this court martial is the culmination of the efforts of the General Staff of the Army and the General Board of the Navy to depreciate the value of air power and keep it in an auxiliary position, which absolutely compromises our whole system of national defense.

"These efforts to keep down our air power were begun as soon as the sound of the cannon had ceased on the Western front in 1918. When we sunk the battleships off the Virginia Capes in 1921 and again in 1923, and proved to the world that air power had revolutionized all schemes of national defense, these efforts were redoubled and have continued to this day.

"The truth of every statement which I have made has been proved by good and sufficient evidence before this court, not by men who gained their knowledge of aviation by staying on the ground and having their statements prepared by numerous staffs to bolster up their preconceived ideas, but by actual fliers who have gained their knowledge first hand in war and in peace.

"I wish to invite particular attention to the letter of former Secretary Weeks to the President of the United States, asking that I be not reappointed as Assistant Chief of the Air Service on account of evidence given by me to a Congressional committee.

"I testified that the Air Service had only nine modern airplanes fit for war and that all others were obsolete and many dangerous. The evidence before this court bears out these facts in their entirety. It has been shown that at present we have only one standard plane in the service.

"Secretary Weeks and indirectly the President of the United States were wrongly and unfaithfully informed as to the condition of our aviation and our national defense by persons furnishing the data on which his letter was based.

"This court has refrained from ruling whether the truth in this case constitutes an absolute defense or not. To proceed further with the case would serve no useful purpose. I have therefore directed my counsel to entirely close our part of the proceeding without argument."

Then Maj. Allen Gullion, assistant Trial Judge Advocate addressing the court, opened a violent attack upon the accused, culminating with an appeal to the court for his conviction. This was immediately followed by a speech by Col. Sherman Moreland, Trial Judge Advocate, closing the court proceedings and appealing for a judgment of dismissal.

The Findings

General Howze, president of the court, announced the decision of the court martial as follows:

"The court, upon secret written ballot, two-thirds of the members present at the time the vote was taken concurring in each finding of guilty, finds the accused guilty of all specifications and of the charge.

"Upon secret written ballot the court sentences the accused to be suspended from rank, command and duty, with forfeiture of all pay and allowances for five years.

"The court is thus lenient because of the military record of the accused during the World War, two-thirds of the members present at the time the vote was taken concurring."

1926 Schneider Cup Race at Norfolk, Va.

The Contest Committee of the National Aeronautic Association held a meeting at the national headquarters, on Saturday, Dec. 12, and voted to have the next race for the Jacques Schneider Cup at Norfolk, Va., in the week beginning October 24th, 1926. The Naval Air Base at Hampton Roads offers good facilities for this race.

The Vickers "Vanguard" Airliner

One of the Latest European Airliners Carrying Twenty-two Passengers

THE VICKERS "Vanguard", a new passenger and freight airliner, primarily intended for use by Imperial Airways on the London-Continental air routes, is a twin engine, twin propeller, tractor biplane, equipped with two Napier "Lion" engines, rated at 450 hp. each and installed on the lower wings, one on each side of the fuselage.

The machine has an enclosed cabin with ample accommodation for 22 passengers, while, at the rear of the cabin, a hold is provided for carrying baggage. Needless to say, in the event of the plane being adapted to freight work only, the passengers' cabin would be refitted and the freight space would thus be considerable. Lavatory accommodations are also provided. Ahead of the cabin, the open cockpit, high in the nose of the machine, provides for the two pilots, with dual controls, one pilot performing the duties of navigator and radio operator when not piloting the plane. The instrument board contains the air speed indicator, altimeter, watches, compass, instrument lighting set, lateral inclinometer, two revolution counters, two oil pressure guages, and oil pressure thermometers. The latter three items are usually mounted on the engine nacelles in clear view of the pilot.

In general appearance, the machine is very similar to the original Vickers "Vimy" commercial plane, though somewhat larger. The characteristic Vickers type biplane tail unit is present and the oval section of the fuselage provides good head room in the cabin. The biplane tail group is arranged with two elevator flaps, one on each individual tail plane, while the three rudders coupled together, of course, serve to provide good directional control.

Twin Engines

The engines, Rolls-Royce "Condors", rated at 650 hp each, are mounted, one on each side of the fuselage, at the position of the first pair of interplane struts, there being three interplane bays to the wings. According to customary practice, an individual undercarriage, consisting of two wheels, is located directly under each engine mounting.

The main wing spars are of spruce and three-ply box section, with the ribs also of spruce, in fact, this wood is used almost exclusively, throughout. The interplane struts are of this wood, with the exception of those which take the weight of the engine, these being of mild steel tube. Internal wing bracing is carried out by means of swaged wires with streamline wires used exclusively for external bracing.

Fuselage Construction

Elm is used for the longerons in the cabin structure, with a covering of three-ply and bulkhead frames of spruce box sections. The rear fuselage section, on the other hand, is formed of segmented spruce tubes, this being employed for both longerons and bulkhead struts, braced with swaged wires and covered with fabric over a fairing.

The structure of the complete tail unit is very similar to that of the wings although mild steel tubing is employed in the rudders and fins.

The Engine Mountings and Fuel System

In the construction of the actual engine bearers, ash is employed, while, as previously stated, mild steel tube is used for the interplane struts at these points. Streamline wires

An internal view of the cabin of the Vickers "Vanguard"

brace the engine mounting. The gasoline system consists of main and gravity tanks, the latter situated under the upper wing, just above each engine. The supply from the tanks, which are of thin sheet steel, is carried out by means of Vickers wind driven pumps, while a hand pump is provided as an auxiliary.

Below each engine, the undercarriage Vees are constructed along usual lines, of mild steel tube, with high tensile steel tube used for the axles. Shock absorption in landing and taxiing is carried out through the Oleo pneumatic principle.

The machine is equipped internally to enable light luncheon to be served during flight and tables for this purpose are provided.

(Continued on Page 914)

The Vickers "Vanguard," one of the most recent European Airliners

Growth of the Scadta

A Financially Sound Commercial Air Transportation Company

THE OPERATIONS of the Scadta air line in South America, are of extreme interest for two reasons. First, although detailed financial statements are not obtainable, there is every reason to believe that the Colombia line has not only paid its way without subsidy, but has actually shown enough profit to make its further expansion interesting from the purely financial standpoint. In the second place, the officials of the company have been actively making plans during the course of the year, for an extension of the service along the Central American republics, to Cuba and the United States. The brief review of its activities taken from sources supposed to be accurate should therefore be of considerable interest to our readers.—ED

The "Scadta" (Sociedad Colombo-Alemana de Transportes Aereos" abbr. S-C-A-D-T-A) was formed as an anonymous company, under Columbian law, in December, 1919. The initial capitalization was modest, being only $100,000, which was subscribed by German residents in Colombia; the control of the stock, however, is in the hands of the able Director, Dr Peter von Bauer. This remarkable executive is a former Austrian Cavalry officer, of distinguished family, who fought the entire war on the Russian front. He has an excellent scientific training and in 1910, he accompanied the American explorer, Dr Hamilton Rice, on one of his Brazilian explorations.

The Scadta company acquired four Junkers all-metal pontoon seaplanes and began regular weekly flights between Barranquilla, on the coast, and Girardot, on the upper Magdalena river.

The local conditions were favorable for the establishment of aerial transportation lines, as Colombia is notoriously deficient in rail and road communications. The Magdalena river is the only practical shipping route, over 80% of the commerce of the nation passing over this river. The journey, by river steamer (1391 km) takes from 7 to 14 days in the dry season and the traffic is often delayed or interrupted. The demand for a dependable and rapid means of transportation is, therefore, apparent and the patronage was assured from the outset.

In 1921, the capitalization was increased from $100,000 to $200,000. The company receives an indirect subsidy from the Colombian Government through the privilege to sell their own postal stamps for air postage, a very considerable source of income.

After preliminary test flights, certain adaptations in design of engine and wings were made to meet the extraordinary flying conditions in that country, there being, for example, necessary altitude changes from sea level to 13,000 invariably in a single flight.

Four Years Schedule Flying

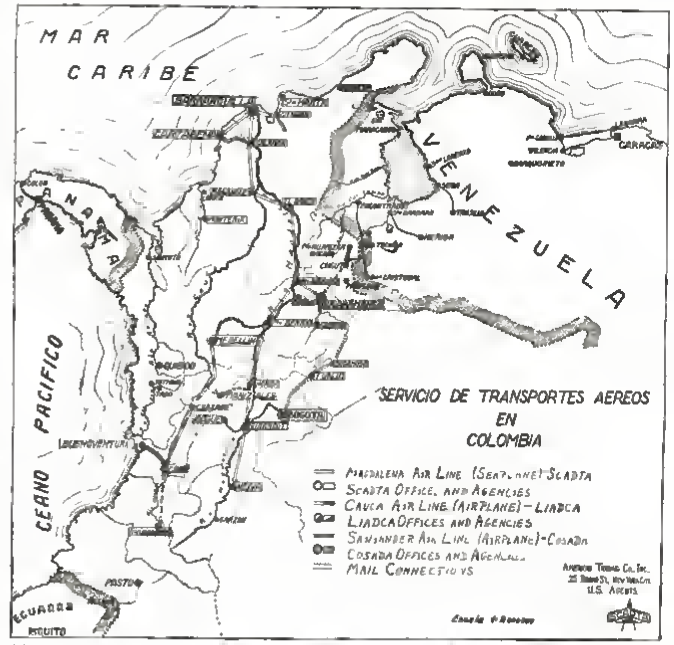
By August, 1921, definite weekly round trips were established between Barranquilla and Girardot, 1030 km.; Girardot and Neiva, 150 km.; Barranquilla and Cartagena, 120 km.

The planes leave Barranquilla each Tuesday and Friday and cover the 1000 km. stretch in 8 to 9 hours, with four intermediate stops. The company has at present six Junkers monoplanes of all-metal duralumin construction, fitted with 300 hp Hispano-Suiza or 180 hp, B.M.W. (German) engines and carry 1,100 lb approximate useful load.

New Twin Engine Planes

On April 10 of this year, a new and larger model seaplane, the Dornier "Wal," was put in operation. Two of these planes have just completed the test-flight from Colombia, via Central American ports, to Havana, Cuba. This Dornier is designed by the former chief-engineer of the Zeppelin company and built in Pisa, Italy. It is, as is well known, an all-metal monoplane, with twin engines in tandem and a flight radius of 2000 km. with a useful load of 3,430 lb. and accommodations for 10 passengers. This same type of plane was used by Amundsen in his recent polar flight.

From Aug. 1922 to Aug. 1924, the company's planes have covered a total of 589,640 km., in 4,521 flying hours. During this time, 2,830 passengers were transported and 219,567 kg. of mail, baggage or freight carried. In order to appreciate this performance, it must be remembered that only four planes were engaged at any one time, two being kept in reserve. The financial returns are very high, in view of the high prices charged. The fares are $160 to $175 per passenger, with 30 cents postage per letter. The patronage, it is interesting to note, fluctuates according to the river condition. Thus, in the dry season, there is more demand for Seadta air service than in flood time. The average total return, per plane per month, is said to have varied between $7,000 and $18,000, although this seems surprisingly high.



Map of the Republic of Colombia, showing air lines and their agencies, together with mail connections

The company has established a photographic section and is prepared to make aerial surveys and maps and, in this respect, they have already done considerable business for oil companies. The company gave proof of its efficiency when engaged by the Boundary Commission, charged with the settlement of the Colombia-Venezuelean boundary. The Scadta completed the survey in 18 days, with 1800 photographs, covering an area of 1,000,000 hectares.

Plans For Expansion

Dr. von Bauer has been in active negotiation with the Post Office department of the United States for the extension of the company's operation to Key West but, due to the fact that the company is controlled by foreign interests, nothing has been settled as yet. However, an American company is being organized to run the connecting link to the United States.

Dornier seaplane from Barranquilla in Havana harbor. Morro Castle can be seen in the background

In the meantime, the "Scadta" has just concluded a contract with the Colombian Government by the terms of which, they will "receive a subsidy of $60,000 toward the purchase of the powerful Dornier "Wal" plane, and by which the Scadta agrees to establish a flying school for mechanics and pilots" and finally a provision "for the employment of the company in the event of international war".

Central American Air Mail

As a result of the propaganda flight to Havana, with the two Dornier "Wal" planes, it is stated that air mail contracts have been arranged with the governments of Honduras and Nicaragua. Due to its work in connection with mapping the Colombia-Venezuela boundary, the Scadta has established itself in Venezuela and has had a plane there since 1923. The name of the company in Venezuela is, "Compania Anonima Aeromercantil de Venezuela" which name is abbreviated into "Aeromarcia". The "Condor Syndicate" which was organized in May, 1924, at Berlin, Germany, for the purpose of developing commercial flying in Latin America, seems to be the controlling company for the activities in the various companies in South America. Its New York connection is the "International Aerial Engineering Co." of 25 Broadway, New York. Stamps for use on the Columbia air line are obtainable from various foreign trading houses situated in the principal cities in the United States.

M.I.T. Aeronautical Engineering Society

Report of Fall Activities

Following the precedent established in the past, the Aeronautical Engineering Society of M.I.T. has been very active this fall in its purpose of arousing interest in and obtaining information about aviation among the undergraduates and the public in general. Its activities in the past two months, however, have been more wide-spread than ever before.

The first event of the school year was a talk by Commander John Rodgers, U.S.N., Assistant Chief of the Bureau of Aeronautics, and of P.N.9 fame. The largest lecture hall in the Institute, seating over 500, was filled with many standing. Commander Rodgers' talk was chiefly on his eventful flight and sailing cruise to the Hawaiian Islands.

A few days later, at a smoker, Lt. Carl Shunway, U.S.N.R., a pilot in the lighter-than-air section, was the principal speaker. He gave a most interesting talk on his experiences as watch officer on the "Los Angeles", and his opinions concerning the "Shenandoah" Accident. The talk was well illustrated with official motion pictures of the Naval dirigibles and airplanes.

On the afternoon of November 14th, Col. LaTourette Driggs spoke at the Twentieth Century Club of Boston, to which the members of the A.E.S. of M.I.T. were invited. A large number were present and took part in the discussion and forum that followed his talk. Another complimentary invitation was extended to the society by the New England Aero Club when Lt. Com. Richard Byrd addressed that organization on his exploring expedition to the Arctic this last summer.

On November 19th, the society was fortunate in hearing Mr. Ralph Upson, the outstanding free balloon pilot, and winner of the Gordon Bennett Race. He reviewed the history of airships and gave a most complete description of the problems met and overcome in the construction of the metal-clad dirigible, the preliminary design of which is now completed. Several general plans and samples of his girders, plating, seam riveting, and sealing, were available for inspection. His lecture was followed by a prolonged period of questioning.

New England Aviation Show

The society materially assisted in the New England Aviation Show, held in Boston during the first week in December, by establishing an exhibit in conjunction with the Aeronautical Engineering Department of M.I.T. A small three foot propeller, driven by an electric motor, generated a free air blast of sufficient strength to demonstrate some of the phenomena of flight. The effect of lift and drag on a wing at varying angles of attack, and a demonstration of autorotation were explained to all interested. An uncovered cantilever glider wing of 36 ft. span, which was built by the society several years ago, amazed spectators by its extreme lightness, weighing, as it does, only 32 lb. Several accurate wind-tunnel models and airfoils were on display, as well as trophies and medals won by the Society.

Airplanes Dust 50,000 Acres of Cotton

More than 50,000 acres of cotton plantation were dusted with calcium arsenate with the aid of airplanes during the past season, according to the annual report of the Bureau of Entomology. Use of the chemical against the cotton boll weevil is becoming a firmly established practice in the cotton belt, as the cost of the process is reduced.

Other destructive insects against which the Bureau of Entomology is waging unrelenting war are the Japanese beetle, which attacks fruit, the European corn borer and the Mexican bean beetle. Efforts to control the Japanese beetle are declared in the report to have met with considerable success.

Vickers "Vanguard" Airliner

(Continued from page 912)

The general details of the airplane are as follows:

DIMENSIONS	
Overall length	53 ft. 0 in.
Overall height	17 ft. 3 in.
Span (spread)	88 ft. 0 in.
Span (folded)	46 ft. 3 in.
Chord	12 ft. 0 in.
Area of main planes	2182 sq. ft.
Loading per sq. ft.	8 lb.
Loading per hp. (2 — 435 hp. @ 2000 r.p.m.)	20 lb.
WEIGHTS	
Aircraft empty with water	10,910 lb.
Gasoline (260 gal.)	1 835 lb.
Oil (18 gal.)	182 lb.
Pilots (2)	360 lb.
Passengers (22 @ 130 lb. each)	3 520 lb.
Baggage	860 lb.
Sundries	103 lb.
Total	17,800 lb.
PERFORMANCE DATA (Calculated)	
Full speed near ground	100 m.p.h.
Climb to 5000 ft.	23 min.
Minimum speed	47 m.p.h.
Duration cruising	470 mi.

The Caldwell Smuggler

By CY CALDWELL

QUITE a new departure has been made in the science of aviation, by the production of the 'Smuggler' by the Cy Caldwell Airplane and Baby Buggy Co. of Cleveland. Organized recently with an authorized capital of $100,000, $6.00 of which has already been paid up, the company is spreading its energies between airplanes and baby buggies, for Mr. Caldwell feels that anyone simple enough to purchase one of his planes, is also sure to have to get a baby buggy sooner or later—in all probability sooner. The practice of combining some other product with airplanes, has received sanction by many well-known manufacturers, who are turning out truck bodies, radio supplies and so forth, with great gusto. Gallons of gusto are kept in the factories for that purpose.

The Engine Silencer

The Smuggler, the first plane produced by the company, fills the vociferous demand for a plane of this type, which undoubtedly will become popular with the best night-flying anti-Volsteadian pilots in the country.

The Caldwell "Smuggler" being loaded for flight

There are many fine features, chief of which is the Motor Muffler that completely silences even the most vociferous pounder and vibrator, turning it into the Silent Knight of the air. In this first plane, the popular Rolls-Rough motor is installed, because of the variety and entertainment afforded by the seventeen different and distinct vibration points it boasts. Exhaust gases are carried through long pipes—made by Dunhill, London—to the mufflers—made by the McMuffett Mufflor and Sweater Co. This muffler renders the motor as silent as a junior officer testifying at an aircraft investigation.

The propellor is wrapped with the softest material available—sixteen layers of those flapper and young wife serials, appearing in the newspapers. Only the softest and mushiest sound comes from the prop. You just hear a faint "Slush, slush, slush"!

A Two Purpose Fuel Tank

But the great engineering triumph is the gas tank. Beneath the filler cover, and inside the tank, is a long tube filled with gasoline so that a snooper, finding this tube full of gasoline, will imagine the whole tank is filled with the same innocuous liquid. It may be, or not, according to needs of the operator. Exhaustive experiments have proved that the tank will carry the same number of gallons of alcohol, as of gasoline. When the gasoline in the tube is all used, the plane is guaranteed to fly the rest of the trip on the reputation of the manufacturer.

For those silent, night landings so greatly desired by our most spirited pilots, balloon tires are standard equipment, furnished by Balloonatics Ltd., Akron. The tailskid is made of soft rubber, so that even the trace of its passage is completely erased.

When used on floats, as a seaplane, the equipment includes, with out extra cost, the Caldwell Patent Anchor, made of the heaviest substance known to man—a volume of the Congressional Record. Two volumes of this substance will anchor the Leviathan, while three will sink it. It is dependent for its good anchoring qualities, solely upon its weight, for it hasn't sufficient point to stick in the mud.

The photograph shows the "Smuggler" being loaded at an obscure siding in Canada, for an experimental flight to Cleveland. Note the desperate characters loading cargo. They have been in commercial aviation for years,—which is why they look so desperate.

Test flights have been conducted by Cy Caldwell, president of the new company, directly above the building that houses the enforcement officers of this district. They didn't hear a sound, and never even looked up from the bottles of captured liquor on which they were making some required tests. When informed that an airplane had passed directly overhead, they seemed paralyzed with astonishment or something.

The "Smuggler" is, indeed, an astonishing plane. It is as quiet as a wooley caterpillar leaping up and down upon a plush sofa, in his barefeet.

Specifications

The specifications of the plane are

Span	So much
Chord	So much less
Weight empty	So much
Weight fully loaded	So much more
High speed	97 m.p.h.
Low speed	130 m.p.h.

N. Y. "Commercial" Presents Series on Aircraft Industry

To give the business man and the investor a better understanding of the commercial importance of the aircraft industry and air transportation, is the purpose of a series of articles which will begin in the New York Commercial January 7 and appear daily for three weeks.

The articles are by Richard R. Blythe, former war pilot, member of the firm of H. A. Bruno—R. R. Blythe and Associates, New York, and writer on aeronautical subjects. In his introduction Mr. Blythe says:

"In this series of articles I will endeavor to bring out the present aircraft situation in such a manner that the average business man will be able to grasp readily the actual size and strength of the industry. It must not be taken for granted that a mushroom growth will spring up over night—there are many rough spots to be smoothed over—but the progress of commercial air transportation is inevitable."

The articles are constructive and controversial subjects are avoided. If the promise of the first article is born out, the New York Commercial, the oldest business publication in the United States, is correctly sensing the importance of aviation and making the industry better known to an extremely important group of business readers.

AIRPORTS AND AIRWAYS

New England News

By Porter Adams

On Saturday, November 21, Lieut. R. Curtis Moffat, Air service, and 1st Commanding Officer of the Boston Airport, was married at Portland, Maine, to Miss Germaine Michaud, in the presence of a small group of relatives and friends. The wedding was followed by a luncheon at the Layfayette Hotel and among those present, in addition to the families, were Lts. Crowley and Nagle from the Boston Airport. Lt. Crowley flew down in a DH, and after the luncheon circled the Hotel and returned to Boston for the Harvard-Yale game. Lt. and Mrs. Moffat have gone to Florida for a few weeks and will return to McCook Field, Dayton, Ohio, about the first of February, where Lt. Moffat is stationed.

Another wedding of aeronautical interest was that on Thanksgiving Day when Miss Mary Foster became the bride of Daniel Rochford, Aviation Editor of the Boston Transcript. After a short wedding trip the Rochfords will be at home in Cambridge, Mass.

On Friday evening, December 4, the Boston Chapter of the National Aeronautic Association held a joint dinner at the Hotel Somerset with the New England section of the S.A.E. at which time Mr. C. G. Peterson, President of the Wright Flying Corporation, was guest of honor and principal speaker. Mr. Peterson chose as his subject "Profit Paying Aeroplanes" and cited actual examples from his personal knowledge of how aeroplanes were actually being used to make money for the owners and operators. At this meeting the question was broached of bringing the next Schneider Cup Race to Boston and Professor Warner, President of the Boston Chapter, appointed a committee consisting of Daniel Sayre, Treasurer of the Boston Airport Corporation; T. G. Holcombe, formerly Secretary of the Aviation Committee of the Boston Chamber of Commerce, and Lieut. R. D. Thomas, Commanding Officer of the Naval Reserve Air Station at Squantum, to investigate the matter and make a further report. This Committee immediately got busy and before the meeting broke up had raised more than $1000 from among those present as the nucleus of the fund to obtain the Schneider Cup Races.

It was further announced that the Boston Chapter of the National Aeronautic Association is going to hold joint monthly luncheons with the Aero Club of New England to which all persons interested in aviation are cordially invited. Those desiring to attend can obtain full information by calling Professor E. P. Warner at University 6900, or by writing him at the Massachusetts Institute of Technology, Cambridge, Mass.

Crissy Field, Cal.

By R. P. Beebe

The rejuvenating of Crissy Field is going on rapidly. The field is being regraded and resurfaced in all parts. The work is still in progress and all pilots should look carefully before landing.

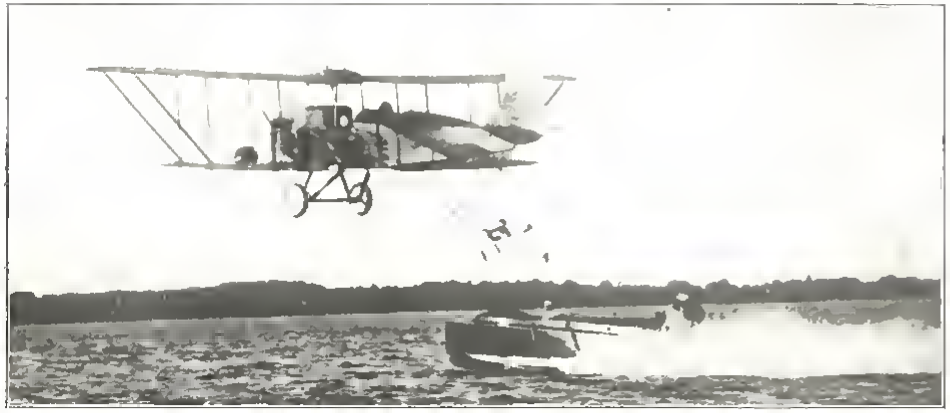
A squadron of four Jennys arrived and departed in a

bunch one Sunday. They were bound for the northern states

Among the visitors to San Francisco by air recently, was Mr. Baumer's four place "Constance." This beautiful ship has been seen in several motion pictures lately, notably "The Air Mail" and Raymond Griffith's "He's a Prince"

the Pacific Coast The Varney company recently took delivery of a new swallow to add to their fleet. Mr Varney's plans for his Elko-Pasco Mail route are going forward rapidly

A Le Rhone "Tommy" has been doing advertising over



A sporting event but unfortunately lost caption prevents giving of credit

The Checker Aircabs of the Varney Air Service are constantly seen at the field A passenger may call the Checker Cab Co. who will send a cab to take him to Crissy Field. In the meantime a New Swallow is on its way up from the Varney Field at San Mateo to convey the passenger to any point on

the city recently The pilot had to do a ground loop to avoid some piles of grading dirt upon landing He tore the fabric of one wing, slightly.

The Yackey Transport, which is going to New Guinea with the Stirling expedition, was a center of interest at the field

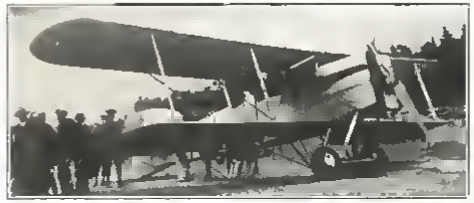
while being given a final overhaul before being shipped

The reserves have a fine organization here They are seen flying over the city constantly, especially on Saturdays and Sundays They have lately completed several long formation flights

Peoria, Ill., Airport

For the past seven years Peoria has had an Airport Previous to that time the mile track was used for such flying as was done The mile track was found inadequate, as it is not of sufficient size, is surrounded by obstacles, with poor emergency fields, and the ground is rough.

With this in mind, the Peoria Aircraft Club was organized with Eugene Brown as its first president Subscriptions were taken up, a field leased and hangar built largely through the assistance given the club by Mr Brown The Varney Aircraft Co, was the first operating company to take advantage of the new field, moving in as soon as the field was



The Yackey Transport being used by the Stirling Expedition to Dutch New Guinea The plane left Yackey Checkerboard Field on Oct 20

opened The first few years the field was leased by the Aircraft Club, and sub-leased to the Varney Aircraft Co Then the club gradually passed out, whereupon the Varney Aircraft Co., leased the field itself.

This original field was of trapezoid shape, with the narrow end of the trapezoid at the south. This end was 1200 ft wide, and the wide end at the north was 1320 ft wide, while it was 1620 ft long This field was used in the absence of anything better, but was not satisfactory, as on some days when the wind was from an unfavorable quarter, take-offs were difficult.

In the summer of 1924 25 acres were added to the field at the North end, making the wide end of the trapezoid 1800 ft, and the field 2000 ft long

Then at the beginning of the 1925 season the owners of the land asked a higher rent, so that it seemed that the field might have to be given up However, at this point the association stepped in and paid half of the rent, while the Varney Aircraft Co, paid the other half, giving the Varney Aircraft Co, the exclusive local rights, and throwing the field open to all visiting flyers, army flyers, mail flyers, etc, free of charge

Now the Association of Commerce believing that Aviation has a future to justify a suitable municipal field, is taking steps to acquire what is believed will be the best commercial field in the State of Illinois Just how this will be worked out is not at present definitely known, but it seems quite probable that Peoria may have a permanent flying field of which it can be proud in the near future

The new field is twice the size, smoother, with no obstacles, and good drainage. It is one and one tenth mile farther from the Post Office than the old field

Robertson Aircraft Co. Prospers

The three Robertson brothers, William, Frank and Daniels, are well known in aviation circles in the middle west The following extracts from a letter received from their St Louis

INDEX TO ADVERTISERS

base show how favorably their affairs are progressing

"So far this year we have sold 76 airplanes, and have on hand airplanes of every description totaling nearly 300 that are being rebuilt, reconditioned and gone over and inspected thoroughly, and then put on the market for sale. We employ 22 mechanics in our shops, and often we have to work night and day to catch up with our orders. All of our mechanics are ex-Army mechanics with wide experience and the class of work we turn out is widely known.

Another concern and ourselves have purchased the entire Houston warehouse and supplies of the Curtiss Airplane and Motors Corpn. last year, which included 450 Standard airplanes. These airplanes, of course, were built during the war period, and we being in the business realize it is not good policy to fly any of this equipment in "as is" condition so we have taken these machines and installed all new longerons, controls, control wires, struts, fittings, gas tanks, instruments, landing gears, etc.

No doubt you remember that we advertised that we were going to try, as an experiment, to teach students to fly for the small sum of $100.00. We tried this experiment for the months of June, July and August, and we were surprised at the replies to our ad, and found that at the end of August the demand was so great for this type of training that we have continued this special rate indefinitely as we find the quantity of students we enrolled are in such numbers that will permit us to make a fair return for our efforts. Up to date we have graduated 49 pilots, and we are pleased to advise that not one of them has even blown a tire, nosed over, or broken a propeller, and we can only attribute this to the careful method in which we give flying instructions.

We have large warehouse and flying depots at New Orleans, La., Houston, Texas, San Antonio, Texas, Kansas City, Mo., and Ft. Wayne, Ind., St. Louis, Mo., and Anglum, Mo. We have the most complete stock of airplanes and parts of every type of airplane that is being flown today, and we are pleased to advise we are enjoying good business.

We are increasing the capital of our organization this month to half million dollar concern and incorporated under the laws of the State of Missouri.

Yours very truly,
WM. B. ROBERTSON,
President

Waycross Georgia News

By L. C. Smith

The aviation field at Waycross is on the south side of the city, just east of the Atlantic Coast Line Railroad Shops.

The Waycross District Shrine Club brought the O. Henry flying circus, (whose headquarters are at Chicago) to Waycross for a three days exhibition, November 26, 27, and 28. It consists of two, five passenger Lincoln Standards, the personnel includes Lt. Hart Smith, a pilot who saw service overseas, Roy Ahern pilot, and E. G. Probst mechanic and stunting man.

Thanksgiving Day saw some stunt flying and a parachute jump by Probst. During the three-day stay, Ahern and Smith did stunt flying and also carried passengers, doing a good business at the latter which is rather unusual for South Georgia, as the public down here seem to be afraid of flying. However, with a few such exhibitions as these and local men taking an interest in aviation, we hope to see an impetus given to aviation in South Georgia in the near future.

Dornier Leaving Germany

It is reported from Geneva that after long negotiations between German and Swiss firms the Dornier works will soon be transferred from Friedrichshafen, Germany, to Arlesheim, near Basle, Switzerland, where a large factory will be built for the construction of airplanes and hydroplanes of the Dornier type, which Roald Amundsen used in his recent expedition to the North Pole.

Varney Buys Swallows For Mail

The Swallow Airplane Mfg. Co., of Wichita, Kan., informs us that they have received an order from Walter T. Varney of San Francisco, Cal., for the ultimate delivery of nine special planes for air mail use. Mr. Varney is well known on the Western Coast as an old time aviator. He put in a successful bid on the air mail feeder line from Elko, Nev., to Pasco, Wash. The original order was for four planes then followed an order for one more and finally an order for a further four.

A special plane is being built for Mr. Varney by the Swallow Co., with Curtiss K and C6 engines instead of the OX5s. A new type high lift wing will be used adding greatly to the performance. There will be special reinforcements for the high altitude flying which must be done on this line and there will be a mail compartment with a cubic capacity of 26 sq. ft. This will be fire proof and have a lock.

The first plane was ready for delivery on Dec. 16 and a more detailed description of the plane will be given in a forthcoming issue.

United States Air Forces

U. S. ARMY AIR SERVICE

Score Another One For the Parachute

Probably the shortest parachute jump on record, with the jumper escaping to tell the tale, belongs to 1st Lieut. Fred C. Nelson, Air Service, Instructor of the 110th Observation Squadron, Missouri National Guard. His passenger, 1st Lieut. Clarence Boehm, failed to use his parachute, although instructed to do so by Lieut. Nelson, and in the crash of the DH which followed he was burned to death before he could be rescued.

The two airmen, flying over the Lambert—St. Louis Field, were at an altitude of 1,000 ft. and the pilot was preparing to land when the plane became unmanageable, the controls having become jammed due to a collapse of a rear strut, or wooden brace, on the left side of the ship extending from the lower to the upper wing.

Production Work at San Antonio Air Depot

During the period July 1 to October 31, 1925, the Engineering Department of the San Antonio Air Intermediate Depot under the direction of 1st Lieut. Clements McMullen completely overhauled and repaired a total of 133 airplanes and 248 engines, as follows:

Airplanes—13 DH4B, 7 DH4B-1, 33 JN, 2 DH4B-P-1, 17 MB3M, 44 DH4M-1, 4 NBS-1, 1 VE-9, 1 CO-4, 5 AT-1, 2 TP-1, 2 PT-1, 1 Douglas C-1, 1 TA-6; Engines—124 Liberty, 102 Wright-E, 15 Wright-H, 3 Wright H-3, 4 Wright A-2.

Army Engine Theft

With the arrest in Miami, Fla., of Edmund Emerson, the Federal authorities have in custody the six men who, it is alleged, were implicated in the theft of three Wright-Hispano airplane motors, valued at $15,000, from the United States Army Air Service station at Mitchel Field, L. I., on the night of Oct. 26 last. Four of the six are soldiers belonging to the Sixty-first Service Squadron, stationed at Mitchel Field, and they are under military arrest awaiting court martial. One civilian was arrested at Astoria when the motors were recovered at his garage some weeks after the robbery. Emerson has been bound over to the grand jury, giving $5,000 bond after waiving examination.

Crissy Flyers Tow Targets

Four pilots from the 91st Observation Squadron at Crissy Field, Presidio of San Francisco, Calif., First Lieut. Wm. R. Sweeley, Staff Sergeants Fred Kelly, Cecil B. Guile and Tech. Sergeant Thomas J. Fowler, have been working with the 63rd Coast Artillery, towing a cloth sleeve target at various altitudes from 1,500 to 8,000 ft. for the anti-Aircraft Batteries to fire at. They also performed night flying for searchlight practice. Incidentally, the cooperation was done at Santa Cruz, Calif., from a 900 ft. field for both day and night flying. Try a night landing in a 900 ft. field some dark Thursday night.

Army Air Orders

First Lt. Edwin E. Aldrin, A.S., appointed Asst. Com. A.S. Eng. Sch., McCook Field.

Vice Capt. Oliver S. Ferson, A.S., relieved as Asst. Com. A.S. Eng. Sch., McCook Field.

Following officers A.S. relieved from duty A.S. Prim. Fly. Sch., Brooks Field, and ordered to report to Com. Gen. Sec. Div. for duty: Sec. Lts. Walter W. Hodge, Judson M. Smith, Thomas E. Smith.

First Lt. Russell L. Meredith, A.S., Selfridge Field, to New York City, sailing Feb. 12, 1926, via Gov. Trans. for Hawaiian Dept.

Sec. Lt. Lewis A. Riggins, A.S., transferred to Inf., Fort Sam Houston.

Sec. Lt. Donald Hudson Bratton, A.S., Fort Sam Houston, transfered to First Cav. Div., Fort Bliss.

Sec. Lt. August William Farwick, A.S., Fort Sam Houston, transfered to First Cav. Div., Fort Bliss.

First Lt. Walter T. Meyer, A.S., Kelly Field, relieved from present assignment and duty and will report to Com. A.S. Adv. Fly. Sch., Kelly Field.

Spec. Or. 223, relieving First Lt. Bernard T. Castor, A.S., from assignment and duty Rockwell A. Int. Dept., and directing him to sail for Hawaiian Dept., revoked.

Navy Air Orders

Mach. Carl Mills det. Nav. A. Sta., Pensacola, to U.S.S. Medusa.

Lt. (jg) Edmonston E. Coil det. U.S.S. Farragut to temp. duty Nav. A. Sta., Pensacola.

Lt. (jg) Blair M. Fuller to temp. duty Nav. A. Sta., Pensacola.

Lt. (jg) Clarence E. Olson det. U.S.S. Maryland to temp. duty Nav. Air Sta., Pensacola.

Ens. Sowell Armor det. U.S.S. Omaha to temp. duty Nav. A. Sta., Pensacola.

Ens. John W. C. Brand det. U.S.S. McCawley to temp. duty Nav. A. Sta., Pensacola.

Ens. Norman W. Ellis det. U.S.S. Zeilin to temp. duty Nav. A. Sta., Pensacola.

Ens. Howell C. Fish det. U.S.S. Kenawha, to temp. duty Nav. A. Sta., Pensacola.

Ens. Kenneth P. Hartman det. U.S.S. Breck to temp. duty Nav. Air Sta., Pensacola.

Ens. Wilfred K. Lankenau det. U.S.S. Henshaw to temp. duty Nav. A. Sta., Pensacola.

Ens. Harold B. Miller det. U.S.S. California to temp. duty Nav. A. Sta., Pensacola.

Ens. Stanhope C. Ring det. U.S.S. Colorado to temp. duty Nav. A. Sta., Pensacola.

Ens. Solomon F. Oden det. U.S.S. Procyon to temp. duty Nav. A. Sta., Pensacola.

Lt. (jg) William R. Cooke det. U.S.S. Maryland to temp. duty Nav. A. Sta., Pensacola.

Lt. (jg) Malcolm E. Selby det. U.S.S. California to Aircraft Sqdns., Battle Fleet.

Comdr. Owen J. Muk (MC) det. Nav. Sta., Tutuila, Samoa, to Rec. Ship, San Francisco.

Pay Clk. Edmund G. Oelkers det. Nav. A. Sta., Coco Solo, C. Z., to U.S.S. Langley.

Pay Clk. Arthur L. Sullivan det. U.S.S. Langley to Nav. A. Sta., Coco Solo, C. Z.

Lt. (jg) John V. McElduff det. Nav. A. Sta., Pensacola, to U.S.S. Brooks.

PUBLISHER'S NEWS LETTER

Last week, this letter discussed the distinctly different places that air transport and what we called "aerial service" occupy under the general term "commercial aviation." One of the conclusions that seemed to be apparent was that air transport and aerial service needed different degrees of regulation. It was therefore, with the greatest interest that we read the new Bingham Bill that has passed the Senate. This bill, instead of laying its greatest emphasis on regulation, reflects the opinion of the President's Aircraft Board, and recognizes that air transport must be encouraged before it can be regulated. In some ways the word regulated seems out of place in speaking of the Bingham Bill, encouraged, is a better word. In introducing the bill, Senator Bingham said: "The purpose of this bill is not so much to regulate as to promote, merely providing sufficient regulation to make sure that there will be proper pilots, proper planes, proper mechanics, to take care of them."

* * * *

AVIATION's view has been almost alone among the multitude of expressed opinions, in taking the position that the time has not yet come for strict Federal regulation. In considering the regulation of aircraft, the fact that the pilot is always subject to the greatest risk, makes this particular kind of regulation different from all others. He may endanger the lives of thousands of others but when an accident occurs he is sure to be the one that gets the full effect of it. It is not like automobile accidents. There, the driver usually has the best chance. It is the pedestrian or the passengers that are more likely to suffer from his deficiencies. In spite of the terrible toll of automobile casualties, there has not been any demand for federal regulation except when these vehicles are used in interstate commerce. If in the early days of the "motor buggies," the manufacturers of expensive cars, the automobile associations, the Army and Navy as well as Chamber of Commerce, had urged Federal inspection of early flivvers and required them to have certificates of road worthiness, their drivers to undergo rigid inspection, and a special department of the government provided for the carrying out of these legal formalities, we wonder whether the automobile industry would now be the center of interest that it is. The automobile manufacturer soon realized that his greatest asset was to make a car that would stand up and they have done so as a matter of plain business necessity rather than from any pressure from the outside.

* * * *

When the accidents that have occurred in the aircraft field are cited as arguments for federal regulation, the real causes of crashes are seldom given. There is a tendency to take the blame from the pilot, who may have lost his life, or if he were lucky enough to escape, to give some structural fault as the cause so as to save the reputation of the operator. It is probably not too much to say that errors of judgment of the pilot are the principal causes of more than half of all aeronautical accidents. Accident statistics from the air services and the Imperial Airways show that even with the most carefully built and inspected aircraft, a major cause of all accidents has been found to be faulty pilotage. It is also undoubtedly true that there are hundreds of airplanes in the country that ought to be condemned as unsafe. The blame for the existence of these planes is on the government for permitting their sale at such prices that any person with a few hundred dollars could buy one and keep on flying it until it was unfit for use. But to make a growing and struggling industry pay the penalty for the government's own shortsightedness is neither fair nor just. One possibility that has been overlooked in most of the regulation discussion is that the parachute is more of a disadvantage from the standpoint of requirements than all the other regulatory requirements put together. This applies equally to the three engined machine, which, theoretically is the safest of all aircraft. Errors of the pilot and weather conditions do not respect the number of engines a plane carries.

* * * *

Those who have an interest in the possibilities of regulation should study carefully Senator Bingham's bill. It now goes to the House, where Representative Parker will take it in hand and guide it through the next stage; then it will go to a conference committee of both Houses. Much can happen along the way, and therefore the progress of the new bill should be watched with the greatest care and interest.

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Now offering thirk section high lift wings to rebuild your Jenny Fuselage into a three-place commercial plane of a moderate price. Information furnished on request
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SPEED WITH SAFETY

CURTISS-REED METAL PROPELLERS AT THE PULITZER RACES

Total number of planes in races		85
Planes equipped with Curtiss-Reed propellers	50	
Planes equipped with other metal propellers	12	
Planes equipped with wooden propellers	23	
	85	85

Six out of nine winners, excluding the On-to-New York and Model Races, were Curtiss-Reeds.

Every plane in the two high-speed races used these propellers.

At the Schneider Cup Races, Baltimore, all entries with the exception of the Italians used Reed metal propellers. All the world's speed records for straightaway or closed courses, land and seaplane, were made with Reed duralumin propellers.

The above record proves conclusively that for high performance the metal propeller has no equal. And not only is it superior for racing, but is equally efficient and necessary for commercial flying.

Mr. Walter H. Beech, Vice President and General Manager of Travel Air, Inc., Wichita, Kansas, writes:

> "In regard to using dural propellers as standard equipment, we are doing this on all custombuilt planes, and figure this in the cost of production."

Mr. J. M. Moellendick, President, Swallow Airplane Manufacturing Company, Wichita, Kansas, writes:

> "I want to congratulate you on your metal propeller which I had the pleasure of demonstrating on my recent tour from Wichita to Detroit, Michigan, and from Detroit to Long Island, New York.
>
> "I kept a close account on the gasoline that we used from Wichita to Detroit, a distance of 1000 miles the route we took, and from Detroit to New York, over 900 miles. I found that we made the trip on 15% less gasoline with the metal propeller than with the wooden one. As we have made this same trip several times in the last four years, I had a good opportunity to make the test.
>
> "There is no comparison between the metal and wooden propeller when it comes to difficult flying through rain and hail storms, etc. From now on, I am heart and soul for the Metal Propeller."

J. D. Hill, veteran pilot of the Air Mail Service, which uses Curtiss-Reed propellers as standard equipment, says:

> "We no longer consider them as metal propellers,—they are just propellers."

Record performance, high factor of safety, long life make the metal propeller the most economical investment for every kind of airplane operation.

Specifications and prices gladly furnished for any combination of machine and motor.

Curtiss Aeroplane & Motor Company, Inc.

GARDEN CITY, N. Y.

MANUFACTURERS AND DISTRIBUTORS OF CURTISS-REED PROPELLERS